WHAT IS CLAIMED IS:

1. A vibration member comprising:

a driving portion;

an elastic member including said driving portion; and

an electro-mechanical energy conversion element as a driving source in contact with said elastic member, said electro-mechanical energy conversion element being provided with an alternating signal to generate a plurality of vibrations so as to generate a driving vibration in said driving portion by combining said plurality of vibrations, wherein an ununiformity of rigidity of said vibration member caused by a polarization treatment performed on said electro-mechanical energy conversion element is offset by partially changing the rigidity of said vibration member.

2. A vibration member comprising:

a driving portion;

an elastic member including said driving portion; and

an electro-mechanical energy conversion element as a driving source in contact with said elastic member, said electro-mechanical energy conversion element being provided with an alternating signal to generate a plurality of vibrations so as to generate a driving

vibration in said driving portion by combining said plurality of vibrations, wherein an ununiformity of a positional phase difference in said plurality of vibrations caused by an ununiformity of rigidity of said vibration member is offset by partially changing the rigidity of said vibration member.

3. A vibration member comprising:

a driving portion;

an elastic member including said driving portion; and

an electro-mechanical energy conversion element as a driving source in contact with said elastic member, said electro-mechanical energy conversion element being provided with an alternating signal to generate a plurality of vibrations so as to generate a driving vibration in said driving portion by combining said plurality of vibrations, wherein an ununiformity of a wavelength in each of said plurality of vibrations caused by an ununiformity of rigidity of said vibration member is offset by partially changing the rigidity of said vibration member.

4. A vibration member comprising:

a driving portion;

an elastic member including said driving portion; and

an electro-mechanical energy conversion element as a driving source in contact with said elastic member, said electro-mechanical energy conversion element being provided with an alternating signal to generate a plurality of vibrations so as to generate a driving vibration in said driving portion by combining said plurality of vibrations, wherein an ununiformity of amplitude of a traveling wave constituted by combining said plurality of vibrations caused by an ununiformity of rigidity of said vibration member is offset by partially changing the rigidity of said vibration member.

5. A vibration member according to claim 1, wherein said elastic member has an annular or disc shape.

6. A vibration member according to claim 1, wherein said elastic member has a substantial bar shape.

7. A vibration member according to claim 5, wherein said electro-mechanical energy conversion elements includes a group of a first vibration and a group of second vibration, an interval by odd number of 1/4 wavelength is arranged between both groups, and portions adjacent to each other at 1/2 wavelength in

each of groups are polarized in direction opposite to each other.

8. A vibration member according to claim 6, wherein said electro-mechanical energy conversion elements includes a group of a first vibration and a group of second vibration, a phase difference by odd number of 1/4 wavelength is arranged between both groups, and each of groups are alternately polarized in the direction opposite to each other in an interval of 1/2 wavelength and at 1/4 wavelength.

9. A vibration member according to claim 7, wherein said groups of first and second vibrations are formed integrally.

10. A vibration member according to claim 8, wherein said groups of first and second vibrations are formed integrally.

11. A vibration member according to claim 7, wherein said groups of first and second vibrations consist of a plurality of elements.

12. A vibration member according to claim 8, wherein said groups of first and second vibrations consist of a plurality of elements.

13. A vibration member having an annular or disc shape, comprising:

a driving portion;

an elastic member including said driving portion, and having the annular or disc shape; and

an electro-mechanical energy conversion element as a driving source having the annular shape bonded to one surface of said elastic member, said electro-mechanical energy conversion element being provided with an alternating signal to generate a plurality of vibrations so as to generate a driving vibration in said driving portion by combining said plurality of vibrations, wherein the rigidity of said elastic member is partially changed in accordance with an ununiformity of rigidity of said electro-mechanical energy conversion element, so that the rigidity of a peripheral direction in said annular or disc shape of said vibration member is set to be uniform.

14. A vibration member having an annular or disc shape, comprising:

a driving portion;

an elastic member including said driving portion, and having the annular or disc shape; and

a plurality of electro-mechanical energy conversion elements as a driving source bonded to one surface of said elastic member along a peripheral

direction, said plurality of electro-mechanical energy conversion elements being provided with an alternating signal to generate a plurality of vibrations so as to generate a driving vibration in said driving portion by combining said plurality of vibrations, wherein, rigidity of said elastic member is partially changed in accordance with spaces among said plurality of electro-mechanical energy conversion elements, so that the rigidity of the peripheral direction in said annular or disc shape of said vibration member is set to be uniform.

15. A vibration member having an annular or disc shape, comprising:

a driving portion;

an elastic member including said driving portion, and having the annular or disc shape; and

an electro-mechanical energy conversion element as a driving source having the annular shape bonded to one surface of said elastic member, said electro-mechanical energy conversion element being provided with an alternating signal to generate a plurality of vibrations so as to generate a driving vibration in said driving portion by combining said plurality of vibrations, wherein by providing said elastic member with a rigidity ununiformity portion corresponding to a portion whose rigidity is non-uniform in said

electro-mechanical energy conversion element, the rigidity of said vibration member is set to be uniform.

16. A vibration member having an annular or disc shape, comprising:

a driving portion;

an elastic member including said driving portion, and having the annular or disc shape; and

an electro-mechanical energy conversion element as a driving source having the annular shape bonded to one surface of said elastic member, said electro-mechanical energy conversion element being provided with an alternating signal to generate a plurality of vibrations so as to generate a driving vibration in said driving portion by combining said plurality of vibrations, wherein in said electro-mechanical energy conversion element, a sectional area of a portion in which an area different in rigidity from another portion is present is set to be different from the sectional area of the another portion, so that the rigidity of the portion becomes equal to the rigidity of the another portion.

17. A vibration member comprising:

a driving portion;

a bar-shaped elastic member including said driving portion; and

an electro-mechanical energy conversion element as a driving source held and fixed between said elastic members, said electro-mechanical energy conversion element being provided with an alternating signal to generate a plurality of vibrations so as to generate a driving vibration in said driving portion by combining said plurality of vibrations, wherein by providing said elastic member with a rigidity ununiformity portion corresponding to a portion whose rigidity is non-uniform in said electro-mechanical energy conversion element, the rigidity of said vibration member is set to be uniform.

18. A vibration member comprising:

a driving portion;

a bar-shaped elastic member including said driving portion; and

an electro-mechanical energy conversion element as a driving source held and fixed between said elastic members, said electro-mechanical energy conversion element being provided with an alternating signal to generate a plurality of vibrations so as to generate a driving vibration in said driving portion by combining said plurality of vibrations, wherein in said electro-mechanical energy conversion element, a sectional area of a portion in which an area different in rigidity from another portion is present is set to be different

from the sectional area of the another portion, so that the rigidity of the portion becomes equal to the rigidity of the another portion.

19. A vibration member comprising:

a driving portion;

a elastic member including said driving portion; and

an electro-mechanical energy conversion element as a driving source in contact with said elastic member, said electro-mechanical energy conversion element being provided with an alternating signal to generate a plurality of vibrations so as to generate a driving vibration in said driving portion by combining said plurality of vibrations, wherein a change of rigidity between polarized areas adjacent to each other in said electro-mechanical energy conversion element is offset by partially changing the rigidity of said vibration member.

20. A vibration member comprising:

a driving portion;

a elastic member including said driving portion; and

an electro-mechanical energy conversion element as a driving source in contact with said elastic member, said electro-mechanical energy conversion element being

provided with an alternating signal to generate a plurality of vibrations so as to generate a driving vibration in said driving portion by combining said plurality of vibrations, wherein a change of rigidity between polarized areas adjacent to each other caused during polarization of said adjacent polarized areas in said electro-mechanical energy conversion element is offset by partially changing the rigidity of said vibration member.

21. A vibration member according to clam 1, wherein, for partially changing the rigidity of said vibration member, a rigidity of said elastic member is set non-uniform partially.

22. A vibration member according to clam 2, wherein, for partially changing the rigidity of said vibration member, a rigidity of said elastic member is set non-uniform partially.

23. A vibration member according to clam 3, wherein, for partially changing the rigidity of said vibration member, a rigidity of said elastic member is set non-uniform partially.

24. A vibration member according to clam 4, wherein, for partially changing the rigidity of said

vibration member, a rigidity of said elastic member is set non-uniform partially.

25. A vibration member according to claim 1, wherein for partially changing the rigidity of said vibration member, a sectional shape of said electro-mechanical energy conversion element is set non-uniform partially.

26. A vibration member according to claim 2, wherein for partially changing the rigidity of said vibration member, a sectional shape of said electro-mechanical energy conversion element is set non-uniform partially.

27. A vibration member according to claim 3, wherein for partially changing the rigidity of said vibration member, a sectional shape of said electro-mechanical energy conversion element is set non-uniform partially.

28. A vibration member according to claim 4, wherein for partially changing the rigidity of said vibration member, a sectional shape of said electro-mechanical energy conversion element is set non-uniform partially.

29. A vibration member according to claim 1, wherein said electro-mechanical energy conversion element generates a standing wave on said elastic member on the basis of a displacement in a thickness direction.

30. A vibration member according to claim 2, wherein said electro-mechanical energy conversion element generates a standing wave on said elastic member on the basis of a displacement in a thickness direction.

31. A vibration member according to claim 3, wherein said electro-mechanical energy conversion element generates a standing wave on said elastic member on the basis of a displacement in a thickness direction.

32. A vibration member according to claim 4, wherein said electro-mechanical energy conversion element generates a standing wave on said elastic member on the basis of a displacement in a thickness direction.

33. A vibration member according to claim 1, wherein said electro-mechanical energy conversion element forms a plurality of flexural vibrations having

different phases on said elastic member on the basis of a displacement in a thickness direction.

34. A vibration member according to claim 2, wherein said electro-mechanical energy conversion element forms a plurality of flexural vibrations having different phases on said elastic member on the basis of a displacement in a thickness direction.

35. A vibration member according to claim 3, wherein said electro-mechanical energy conversion element forms a plurality of flexural vibrations having different phases on said elastic member on the basis of a displacement in a thickness direction.

36. A vibration member according to claim 4, wherein said electro-mechanical energy conversion element forms a plurality of flexural vibrations having different phases on said elastic member on the basis of a displacement in a thickness direction.

37. A vibration member according to claim 13, wherein a plurality of groove portions are formed on a driving side of said elastic member, and the non-uniform portion of the elastic member of which rigidity is partially changed corresponds to the groove portion of which depth is different from the depth of others.

38. A vibration member according to claim 14, wherein a plurality of groove portions are formed on a driving side of said elastic member, and the non-uniform portion of the elastic member of which rigidity is partially changed corresponds to the groove portion of which depth is different from the depth of others.

39. A vibration member according to claim 13, wherein the non-uniform portion of the elastic member of which rigidity is partially changed consists of a material different from that of the other portion so as to increase the rigidity.

40. A vibration member according to claim 14, wherein the non-uniform portion of the elastic member of which rigidity is partially changed consists of a material different from that of the other portion so as to increase the rigidity.

41. A vibration member according to claim 13, wherein said elastic member consists of a material having a plurality of pores, and the non-uniform portion of the elastic member of which rigidity is partially changed is made by decreasing the pore ratio with respect to the other portion so as to increase the rigidity.

42. A vibration member according to claim 14, wherein said elastic member consists of a material having a plurality of pores, and the non-uniform portion of the elastic member of which rigidity is partially changed is made by decreasing the pore ratio with respect to the other portion so as to increase the rigidity.

43. A vibration member according to claim 15, wherein sectional areas between a plurality of electrodes on said electro-mechanical energy conversion element is made large so as to coincide the rigidity thereof with the rigidity of the other portion.

44. A vibration member according to claim 25, wherein sectional areas between a plurality of electrodes on said electro-mechanical energy conversion element is made large so as to coincide the rigidity thereof with the rigidity of the other portion.

45. A vibration member according to claim 16, wherein a sectional area corresponding to an electrode is made small so as to coincide the rigidity thereof with the rigidity between a plurality of electrodes.

46. A vibration member according to claim 25, wherein a sectional area corresponding to an electrode

is made small so as to coincide the rigidity thereof with the rigidity between a plurality of electrodes.

47. A vibration member according to claim 37, wherein the non-uniform portion of the elastic member of which rigidity is partially changed corresponds to a plurality of groove portions which are adjacent to the non-uniform portion and of which depth are made different from the depth of other groove portions.

48. A vibration member according to claim 38, wherein the non-uniform portion of the elastic member of which rigidity is partially changed corresponds to a plurality of groove portions which are adjacent to the non-uniform portion and of which depth are made different from the depth of other groove portions.

49. A vibration member according to claim 13, wherein a plurality of groove portions are formed on a driving side of said elastic member and protrusions are formed therebetween, and the non-uniform portion of the elastic member of which rigidity is partially changed corresponds to protrusion of which shape is different from others.

50. A vibration member according to claim 14, wherein a plurality of groove portions are formed on a

driving side of said elastic member and protrusions are formed therebetween, and the non-uniform portion of the elastic member of which rigidity is partially changed corresponds to protrusion of which shape is different from others.

51. A vibration member according to claim 13, wherein the non-uniform portion of the elastic member of which rigidity is partially changed is made of a material of which density is different from the density of material of the other portion.

52. A vibration member according to claim 14, wherein the non-uniform portion of the elastic member of which rigidity is partially changed is made of a material of which density is different from the density of material of the other portion.

53. A vibration member according to claim 37, wherein a groove is formed on said elastic member so as to generate a difference in a natural frequency of a plurality of vibration series which forms vibration mode having a degree different from that of the driving vibration.

54. A vibration member according to claim 38, wherein a groove is formed on said elastic member so as

to generate a difference in a natural frequency of a plurality of vibration series which forms vibration mode having a degree different from that of the driving vibration.

55. A vibration member according to claim 13, wherein the non-uniform portion of the elastic member of which rigidity is partially changed is located adjacent to said electro-mechanical energy conversion element.

56. A vibration member according to claim 14, wherein the non-uniform portion of the elastic member of which rigidity is partially changed is located adjacent to said electro-mechanical energy conversion element.

57. A vibration wave driving apparatus including said vibration member according to claim 1 and relatively moving said vibration member and a contact member pressurized to contact with said vibration member.

58. A vibration wave driving apparatus including said vibration member according to claim 2 and relatively moving said vibration member and a contact member pressurized to contact with said vibration

member.

59. A vibration wave driving apparatus including said vibration member according to claim 3 and relatively moving said vibration member and a contact member pressurized to contact with said vibration member.

60. A vibration wave driving apparatus including said vibration member according to claim 4 and relatively moving said vibration member and a contact member pressurized to contact with said vibration member.

61. A vibration wave driving apparatus including said vibration member according to claim 13 and relatively moving said vibration member and a contact member pressurized to contact with said vibration member.

62. A vibration wave driving apparatus including said vibration member according to claim 14 and relatively moving said vibration member and a contact member pressurized to contact with said vibration member.

63. A vibration wave driving apparatus including

said vibration member according to claim 1 and relatively moving said vibration member and a contact member pressurized to contact with said vibration member through a fluid.

64. A vibration wave driving apparatus including said vibration member according to claim 13 and relatively moving said vibration member and a contact member pressurized to contact with said vibration member through a fluid.

65. A vibration wave driving apparatus including said vibration member according to claim 14 and relatively moving said vibration member and a contact member pressurized to contact with said vibration member through a fluid.

66. An apparatus having said vibration wave driving apparatus according to claim 64 as a driving source and driving a driven member.